munication with the inner ear through which dangerous infection might pass.

These are the cases which after a well performed radical operation, still continue moist. The operation was not indicated and when it was done it did not meet the necessities of the case.

THE DIFFERENT OPERATIONS FOR CHRONIC SUPPURATION OF THE MIDDLE EAR.*

By H. BERT. ELLIS, M. D., Los Angeles.

The treatment of chronic suppuration of the middle ear certainly does not present a brilliant field for medicine or surgery. Local treatment of a medical character frequently stops a discharge which has existed for months or even years, but the suppuration is more than likely to return with the first severe so-called "cold in the head" or on exposure to untoward atmospheric conditions. This fact has caused a reaction from local therapeutic measures to surgical interference.

The objects of treatment in chronic suppurative otitis media are, 1st. To arrest the discharge; 2nd. To prevent complications; 3rd. To restore hearing.

The surgical procedures invoked to accomplish these objects may be classified (1) adenectomies; (2) curettage; (3) ossiculectomy; (4) the meatomastoid operation and (5) the radical mastoid operation.

1. *Adenectomy.* The first surgical procedure in a chronic suppurative otitis media is to remove all adenoid tissue, and to reduce such superfluous nasal tissue as may be necessary to give natural nasal breathing, for we may be tolerably certain that to remove the discharge from the ear, it will be necessary to get rid of the infecting secretion from the Eustachian tube, and this is particularly so when the perforation of the drum head is centrally located over the tympanic orifice of the Eustachian tube. In these cases, it is sometimes necessary to dilate the isthmus of the tube, in addition to doing the adenectomy.

To remove adenoids it is better to use a general anesthetic in all children under sixteen years of age, excepting in such individuals whose pathological condition contraindicates the use of an anesthetic, and it may be well to state right here that chloroform is *always contraindicated* in the adenoid operation.

2. *Curettage.* When polypi or granulation tissue are present in the external auditory canal they should be snared or curetted away. A perforation of the membrana tympani at its margin usually means necrosis of the bony walls or of the ossicles. When the perforation is at the lower border, the floor of the middle ear may be cautiously curetted with a small bent curette, after making the opening in the drum head sufficiently large for perfect drainage, but if sepsis be present, one must be on the lookout that the jugular bulb is not infected, and if it be, nothing less than the radical operation will suffice. If one is able to secure smoothness of the floor, then the daily or bi-daily cleansing and packing lightly with sterilized gauze till the necrotic area is healed, may result in a cure. If the perforation be at the anterior margin, the anterior wall is probably necrotic and the curette may be used, but also with great caution, because of the close proximity of the carotid artery. Curette is usually performed under local anesthesia.

3. *Ossiculectomy.* When the perforation is just above the short process of the hammer, the head of this bone is most probably necrosed, and the hammer should be removed. If the perforation be at the upper margin, involving Sharpnell's membrane and edge of canal, the inner wall of the canal, as well as some portion of the ossicular chain, is probably necrosed. In these cases, curettage will accomplish little or nothing, but the ultra-conservative aurist may try ossiculectomy, and oftentimes with gratifying results. However, since 1893 when MacEwen presented his historic work on "Pyogenic Diseases of the Brain and Spinal Cord," this operation has almost fallen into disuse.

Ossiculectomy may be performed under local anesthesia, but with it the pain is very severe; probably the best local anesthetic is a mixture of equal parts of cocain, carbolic acid and menthol. The drum head swabbed with this mixture becomes tolerably well anesthetized in from fifteen to twenty minutes. General anesthesia is usually necessary in order to do the operation carefully and thoroughly. The auricle and external meatus should be scrubbed with liquid soap and warm water, followed by an alcoholic bath. The incision is probably best begun at the center of the anterior margin, continued upward to the malleus and then along down the handle to the umbo, then upwards along its posterior border, then backward to the posterior border of the membrane, leaving a large portion of the membrane for regeneration and repair, though sometimes this may interfere with drainage and must be watched. The tensor tympani muscle is then cut with an angular knife, as well as the ligamentous attachments of the malleus to the outer wall. The malleus may then be removed with forceps or the ring knife. The incus is best detached with the incus hook, and the bleeding, which is frequently very troublesome, may be controlled by a hot 1 to 2000 bichlorid of mercury solution, after which it is dressed with a strip of sterile gauze, loosely packed and sealed with collodion.

The object of operative procedures by way of the auditory canal is primarily to secure free drainage and to remove necrotic and carious tissue, when such is present in the tympanic cavity in limited and easily accessible areas; thus we often remove parts of the auditory conducting mechanism and at the same time carry out the well-known surgical principle of removing obstructions to the thorough evacuation of purulent collections, as previously described. By these means, provided the tympanic focus of infection is limited and available to such instrumentation, the causes which keep up the discharge are removed with the elimination of the diseased bone, and the surgical cleanliness which may then be obtained. In addition to removing the

* Read at the Thirty-ninth Annual Meeting of the State Society, San Jose, April, 1909.

necrotic tissue and carious bone, marked mastoid changes are prevented (especially when the malleus and incus are removed), because of the better drainage and facilities for getting at previously inaccessible parts above and behind.

In selected cases of chronic suppuration, persisting in spite of ordinary non-operative measures, intra-tympanic operation is undoubtedly most promising and is also remarkably free from risk to the life of the patient.

While it must be borne in mind that in practically all cases of long standing diseased bone is almost always present, yet when the carious areas are confined to the two larger ossicles, or, to parts of the tympanic walls accessible through the canal, excision and curettage present an almost ideal form of operation, as its performance is comparatively simple and safe, and in a large percentage of these cases a permanent cure may be confidently expected. And it has the advantage of not requiring an external wound, nor keeping the patient incapacitated for any considerable length of time; but, if *hearing* is of the first importance to the patient, it is well to avoid ossiculectomy, provided the hearing approaches normal, as the operation impairs the hearing in probably fifty per cent of the cases operated upon.

The final results, in so far as amelioration or cure are concerned, are usually most gratifying, especially if the accessory cavities or walls are not too extensively involved.

In some cases, the suppurating ceases within a few weeks with but little after treatment; in other cases, it may require as many months, with extreme care as to details; while in those cases which do not yield, a radical mastoid may still be necessary.

Oppenheimer says: "In all cases of chronic otitis media conservatism should demand ossiculectomy prior to the performance of the mastoid operation," and the writer is inclined to the belief that our zeal for the more radical operative procedures has, to a considerable extent, placed ossiculectomy in the background. There is no question that many cases are susceptible to cure by the performance of ossiculectomy, yet failure in no way compromises a more extensive operation, but rather is only a step towards this end, if such be necessary.

4. *The Meato-Mastoid Operation.* Chronic suppurative otitis media with a central perforation frequently only means a simple infection of the mucous membrane of the middle ear, and therefore quite often responds to local treatment, but if suppuration persists, after the adenoid tissue has been removed, the Eustachian canal has been treated, and the middle ear itself thoroughly taken care of for several weeks, and if there be no necrosis of the bony walls or ossicles, then the meato-mastoid operation may be performed.

The technic varies but little from that of the radical operation. The antrum is opened and the mastoid cells cleaned out, then the posterior wall of the external auditory canal is cut away, down to the annulus tympanicus, neither the drumhead nor the ossicles being disturbed. All of the posterior wall of the external auditory canal that can with safety be removed is taken away in order that drainage may be as little impeded as possible, and that the after dressing may be made without too much distress to the patient. The operation and the dressings are essentially the same as in the radical operation.

5. *The Radical Mastoid Operation.* At the present time, probably the most difficult problem in chronic suppurative otitis media is to know when to open the mastoid in the absence of any well-marked symptoms pointing to its involvement, and while general indications may be formulated, the question as regards the individual case must be solved by the particular conditions present in that case. Politzer gives the following indications:

(a) *Subjective.* 1. Persistence of pain in the ear or over the mastoid process. 2. Permanent or intermittent attacks of vertigo, due to erosion of the external semi-circular canal. 3. Marked cerebral disturbances.

(b) *Objective.* 1. Caries of the wall of the tympanum. 2. Granulations and polypi in the vicinity of the aditus and recurring quickly after removal. 3. Fistulous openings in the cortex. 4. Cholesteatoma. 5. Hyperostotic stricture of the external auditory canal. 6. Facial paralysis or paresis. 7. Painful swelling of the mastoid. 8. Prolonged fetid suppuration, resisting treatment, especially if the upper posterior region of the membrana tympani is perforated and its remnants are adherent to the internal wall of the drum cavity, and more so, if pus and epithelial masses can be drawn from the region of the aditus by aspiration. 9. Symptoms of tuberculosis occurring in a case of chronic suppuration (aural suppuration in a case of pulmonary tuberculosis being a contra-indication for operation on the mastoid). 10. Evidences of intra-cranial or sinus involvement. He further believes that when the objective signs are accompanied by some of the more serious subjective symptoms, operation becomes imperative, but as clinical symptoms and pathological findings do not always correspond, it is impossible to lay down strict rules to indicate when the mastoid operation should be performed. (Oppenheimer.)

A radical mastoid is indicated when, during the course of a middle ear suppuration, general symptoms of septic absorption, otherwise unaccounted for, make their appearance. (Kopetzky.)

Unless bone necrosis is very extensive, local measures, tympanic curettement and ossiculectomy should first be employed. If they fail to afford relief, proceed to the radical mastoid operation.

Discussion.

Doctor D. H. Trowbridge, Fresno: I think a good deal of our chronic suppuration is due to neglect of treatment at the time. This is due to the fact that very few of these cases come into our hands just before or shortly after the membrane has ruptured and very few of these cases continue very long with a suppuration. I fail to remember over a period of time, any of these cases that I would not have been able to clear up the discharge, unless they had gone on to more serious complication of the mastoid cells, and of course have required an operation for acute mastoiditis. I think that our treatment of these cases should be a little more radical than it has been in the past. We should keep up

the free drainage and not hesitate to make an early paracentesis, and after that if the opening tends to close and drainage does not appear to be established, we should make repeated enlargements of the opening and usually under anesthesia. I find, as a rule, I am not able to make a second opening of the drum membrane under cocain or local anesthesia, as the patient will involuntarily jerk away. Consequently a little gas or ether is better in making a thorough opening and enlarging it along the posterior auditory canal, especially in those cases where the discharge has a tendency to continue and where there is more or less tenderness over the mastoid. As far as radical treatment is concerned, I do not believe I will give my opinion. There are many others here who have operated more than I have. There is no question that a great many of these cases which go on and we are unable to clear up with local treatment, should be operated on. I know of three cases in my neighborhood which have died in the last year from brain abscesses undoubtedly due to suppuration of the middle ear, which were not operated upon.

Doctor Hill Hastings, Los Angeles: In opening the discussion on the indications for operation for chronic ear discharge, I should like to bring up for discussion some contra-indications. In doing so I do not wish to take an opposing view to Dr. Sewall, for I strongly believe in the opinions expressed by him so clearly. But it is likely time limit forbids his detailing certain points on the other side of the question. It is no good argument to say that some radical operations are needlessly done, however true it may be; for in the hands of an experienced man in the long run he will prevent many deaths that would have resulted from ultra-conservatism. Nevertheless, the radical operation is in itself not free from danger. It is an operation that should never be done, in my opinion, without the most searching diagnostic examination, without thorough preliminary treatment, and then only by one who has good operative training. There are some particular points I should like to bring up for discussion. I am assuming that we are to discuss the radical operation done solely to stop a chronic ear discharge and the dangers that might result therefrom; and not that mastoid suppuration is already evident. 1st. As to the patient's general condition. I think we should most painstakingly search into his previous history and present general condition, and that operation is contra-indicated until we have made the search. The two main points in the general history are the presence of tuberculosis and the presence of diabetes. In the former disease it is my experience that a radical operation is rarely necessary; dangerous secondary infections rarely occur, also that the repair after mastoid excavation in tubercular patients is slow and often incomplete. In diabetes, on the other hand, dangerous secondary infections are apt to occur and mastoids so infected run a bad course; nevertheless, the danger of the radical operation is heightened by this same lack of resistance. If the discharge becomes profuse and persistent one is justified in performing the radical operation, even though no mastoid pain or tenderness, fever or other acute symptoms have arisen. I have seen in diabetic patients extensive epidural abscesses form; and in one case rapidly developing meningitis resulted fatally, without warning, other than the persistent discharge. The medical consultant stood out for delay on account of diabetes. As to the radical operation in children, I feel it should rarely be done, except for two conditions, cholesteatoma, and signs of internal ear involvement. In other conditions I am inclined towards the meato-mastoid operation, which secures evacuation of any lurking mastoid disease, secures the best possible middle ear drainage and still leaves untouched the tympanum and its hearing function. Any one who has seen a hundred or more radicals and done the after treatment can not fail to be impressed with the large numbers of failures, in children, to stop the discharge. And to stop the discharge is what the parents seek. In children, especially, treatment of the nose and naso-pharynx, removal of adenoids, etc., should be most thoroughly tried before operating. A long period of local ear treatment should be insisted upon. It is interesting to note the trend of the discussion at the 1908 German Otological Society meeting, where so many ear men laid stress on the value of the old treatment by cleansing, drying and insufflation of boric acid powder. As to cholesteatoma, when its presence is determined, I think we should rarely hesitate to urge radical operation.

A word as to signs of internal ear suppuration, as indications for the radical operation. The material progress in otology in the last year or two has been along the lines of diagnosis of suppuration of the middle ear. It has taught us much and we can look back on cases where death resulted from meningitis where no mastoid suppuration had existed and where we felt at a loss to account for the fatal issue. Suppose a child or adult begins to have nausea and vomiting and a little dizziness—symptoms referable to the stomach—a little fever begins, increases, meningitis develops and death results; it is not inconceivable that neither the patient nor the family physician paid much attention to an old ear process which was not causing any mastoid swelling and no pain or tenderness. The valuable work of Barony, Von Stein, Alexander and others now teaches us how to search out the signs of internal ear suppuration. It is well to remember that in children the communications between the brain cavity, particularly the posterior fossa, and the internal ear are quite large and permit infections to spread in either direction more easily than in adults. I think the radical operation is contra-indicated in every case until we determine as nearly as possible the condition of the internal ear, the static as well as the auditory parts of the internal ear.

Doctor Redmond Payne, San Francisco: I was very glad to hear Dr. Ellis include in his operations for chronic suppuration of the middle ear, not alone operations directed to the middle ear itself and the mastoid, but also take into account the nose and throat, and condition of the tubes. I think I quite agree with Doctors Sewall and Ellis with regard to treating these cases along milder lines, and very thoroughly, before resorting to the radical operation. I do not think that complete treatment of a suppurative middle ear has been given until thorough treatment of the nose and naso-pharynx is considered in connection with it, particularly with regard to the patulousness of the Eustachian tube. Dr. Ellis spoke about the turbinates and adenoids, the condition of the naso-pharynx and the dilation of the Eustachian tube, the last an exceedingly important matter in carrying out the complete mild treatment, or non-operative treatment of the middle ear, the object being to secure thorough drainage of the contents of the middle ear. It seems to me that the whole ear apparatus should be considered, the nose and throat, the Eustachian tube and the middle ear, and the antrum of the mastoid—all should be taken into account when we consider the treatment of the middle ear. It should be considered as a whole and every part looked into carefully before operation is determined upon. The detail of the treatment of the middle ear is of tremendous importance. A small opening in a drum should always be enlarged so that the middle ear can be gotten at thoroughly, and the middle ear end of the Eustachian tube looked after. A method of treatment which I have found successful, after attending to the nose and throat and the naso-pharynx, and the tube has been dilated, is to inject 10% argyrol into the middle ear through that part of the tube where infection is so frequently retained. It seems to me from what I have observed lately in the cases

of Doctor Ballinger in Chicago and Jansen in Berlin, that the modified radical operation is being adopted by many, and is giving better results for hearing as well as getting rid of the disease quite as certainly. I refer to the Heath operation, and I believe that is the one Doctor Ellis means in the term meato-mastoid. When the radical operation is indicated I believe that better results will be gotten by this modified radical operation in all cases except cholesteatoma and where there is suppuration or infection of the labyrinth.

Doctor Kaspar Pischel, San Francisco: It has been mentioned that even after a successful mastoid operation, patients often come back to the doctor with a running ear. Such occurrences are a great disappointment to the patients or their parents; they think that the old trouble has come back again, while we know that it is usually an eczematous condition, a breaking down of the thin covering of the bone. In order to prevent that we should try to cover it with a good healthy skin. In 1901 I recommended the use of a skinflap for immediate closure of the mastoid wound which has served me well. (Archives of Otology, Vol. XXX, 1901.)

Doctor R. D. Cohn, San Francisco: I think the crucial point in this entire discussion is: should every case of chronic middle ear suppuration be operated upon or not? Doctor Welty thinks it should. This is a standpoint against which, in common with Doctor Sewall, I protest. I believe Doctor Welty is virtually alone in his extreme view, according to which every case of ear suppuration which does not heal in from six to eight weeks should be operated upon. There would be some justification for this standpoint only if every person with chronic middle ear suppuration who went along without operation were lost if once complications developed. This, however, is very far from being the case. The removal of the tympanum and of the ossicles is not a matter of indifference to the patient, since the faculty of hearing depends in great measure upon the integrity of these structures. Therefore, to ream out the tympanic cavity in every case of chronic suppuration is a reprehensible procedure unless the life of the patient is in jeopardy. In the absence of fever, the absence of positive involvement of the mastoid cells, the absence of cerebral symptoms, the operation should not be done at all. With these conditions present, or with undoubted evidence of cholesteatoma, the antrum and the other mastoid cells should be opened. When the radical operation proves injudicious, the Schwartze procedure as improved by Stacke is without doubt the method of election.

Doctor W. E. Briggs, Sacramento: The important question brought out by the discussion this afternoon is as to the time to operate in chronic middle ear trouble, and whether all cases should be radically operated upon. Like many others of this Association I have changed my views on that question at different periods of my work. I remember one time a good many years ago, after spending some months with Doctor Jansen in Berlin, I came home with a good deal of enthusiasm, and thought that every case of middle ear suppuration should be operated. In Paris I had learned that every case of chronic ear suppuration ought to be operated if not cured after four weeks. In the hands of men who have less experience than Doctor Jansen, I have concluded that it is not good advice to give generally. I have had a great many good results. I have had some cases of extensive operation, healed in less than two weeks, but on the other hand I have had others that have done as badly as any one's. Gradually I think I have become a little more conservative than I have been at some periods of my practice, and I think that the tendency will be to be a little more conservative. I do not believe that the danger is so great. I see a great many of these cases cured after careful treatment and after you have taught your patient or the friends to give the patient the very best possible attention, I think you will find a very large percentage relieved of all danger and be in a much safer condition than if they had a hasty operation or a radical operation. At the present I think I stand very much as Doctor Sewall has expressed himself.

Doctor J. D. Arnold, San Francisco: A symposium upon chronic suppurative middle ear disease always develops into a question as to the advisability of operation upon the mastoid. I am very prone to lay very much more stress than even Doctor Sewall did upon the real condition of the tympanic cavity before any question of operation arises. As to the operation itself, many of us will remember that it is only twenty years ago that the operation really attained anything like a competent technic. The mastoid operation before the time of Schwartze was an alternative to rapid death. We can remember very well when no mastoid operation was done, particularly not the radical operation, unless cerebral symptoms were present. Schwartze taught us that there were indications for operation even in the absence of cerebral symptoms. Without again going over the history of the measure, this much may be said as to the indications. It is certainly not judicious to operate upon every case of chronic suppuration of the middle ear in the absence of cerebral complications, merely because the suppuration has lasted two or even ten weeks; but just as soon as symptoms point to an inflammation of the mastoid cells then operation comes into question. When a discharge from the middle ear is accompanied with a rise of temperature, then you have an indication for opening the antrum and mastoid cells. The question as to whether an operation shall be radical will depend entirely upon the condition of the parts found at the time.

Doctor G. P. Wintermute, Oakland: Where the mastoid cells are involved, if the drainage is good, there is no mastoid abscess, but the mastoid cells are involved in every case of otitis media. If the case does not get well after six weeks' irrigation, there is bony destruction there probably, and while I have no objection to an ossiculectomy being done previously, still you must remember that the tympanum is only a small portion of the diseased area. It may be the only portion in which there is bone necrosis, and in such an event it will be successful, but as it is a small portion of the pathological area, it will not be followed by good results. I do not believe in operating on tubercular cases, and I think these should be excluded. I think it is simply a case of having diseased bone, and conservative treatment allows it to run and trusts to Providence, so to speak. You do not get any further even with an attic canula than the antrum. It seems to me the logical procedure is to go in and clean out your diseased bone when you can exclude tuberculosis.

Doctor W. M. Fredrick, San Francisco: I have very little to add to my paper, inasmuch as all the other readers of papers, and those who have discussed them, have supported me in maintaining the contention that we are to-day far more conservative in regard to the treatment of the middle ear than we were formerly, and are becoming more and more so every day. There is only one point I would like to make here. The speakers have mentioned suppuration as having existed for so many weeks, etc. We cannot say that a suppuration has existed for so many weeks unless it has really been treated, and in the majority of cases it has not been treated at all. We cannot call the visits of the patient to the office, treatment. We should spend a great deal more time than we do in seeing that the patients are properly treated at home, and we should teach them how to wash the tympanic cavity out properly. If we watch the majority of laymen trying to wash the ear we will see that they wash the canal and that the tympanic cavity receives no treatment whatever.

We should insist that the treatment should be done as we want it done, and not in a careless, slipshod way. I have seen marked changes take place in the conditions when the home treatment has been carried out as it should be. Von Ruppert has shown what can be done in treating these patients correctly, and he has obtained what he concludes to be complete cures. Of course the surgical treatment of these patients is a more brilliant one and perhaps more impressive, but the results should make us hesitate to undertake it. As Doctor Pischel has said, the patients and parents are so often thoroughly disappointed when, after undergoing all the dangers and expense of a mastoid operation, they find that the discharge will return at intervals. This is a matter of great disappointment and sometimes the patient will consider that the work was not done at all when told that he will have to remain under observation. On the other hand, if we can put a stop to the suppuration, and obtain a healing over of the perforation, the patient is liable to an acute suppuration of the middle ear, in a somewhat greater degree than if his ear were quite normal; but the danger of the suppuration returning is far less than in those cases where the natural protector of the tympanic cavity, the drum, has been removed. Personally I know of cases in which the suppuration has not returned in thirty-five years and over.

Doctor H. Bert. Ellis, Los Angeles: I must say that I have become much more conservative in my views on radical operation than I was five years ago. In the absence of definite symptoms for radical operation in cases of chronic suppurative otitis media, I hardly believe we are justified in doing the operation until we have tried removing all necrotic tissue which we can reach through the canal and have put the tube in a patulous condition. When we have done this and the suppuration continues and the hearing is badly involved and the patient is suffering from the discharge and the sense of its unpleasant effect, then we may be persuaded to do the radical operation. If we have definite symptoms, such as brain symptoms and cholesteatoma, then we are perfectly justified in operating.

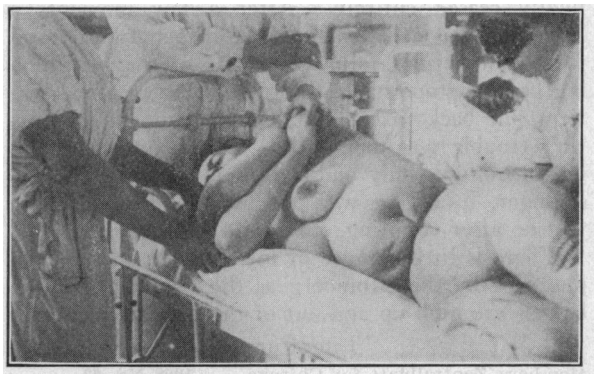
MOMBERG'S TUBING APPLIED AS A TOURNIQUET FOR BLOODLESS SURGERY OF THE PELVIS.

By GEORGE K. HERZOG, M. D., San Francisco.

The compression of the abdominal aorta as a method of arresting hemorrhage is not new or untried. The great difficulty heretofore has been the method. The most common employed has been pressure made by hand with or without a pad over the aorta which has always proven to be tiring to the operator and usually unsatisfactory. The other method, known as Dupuytren's, consisted of a semicircle of metal with a pad at one end which when fastened made a tight band. This was also unsatisfactory as the metal cut and the distribution of pressure was irregular.

Momberg's tubing is now adopted among our German colleagues as efficient, safe and rational. It consists of ordinary rubber tubing about ½-inch in thickness and about 5 feet in length, the plain stomach tube minus the bulb makes an admirable tourniquet for this purpose. This tubing is placed twice around the abdomen a little below the umbilicus and tension is then made until the femoral ceases to pulsate. The tube is then held by the hands and hemorrhage from below is completely under control. No method of holding the two ends other than by the hands has been found to be feasible. At first this procedure seems dangerous and crude but observation has taught me that it is perfectly safe and the results surprising. A few cases that I observed in Bumms' Clinic in the Charité Hospital of Berlin will be herein recorded, also one by Bier and one by Hobauer. This method has been used by Sigwart and Roeck, Bumms' assistants, with splendid results. Its adoption in post partem hemorrhage is ideal and greatly to be recommended. The fear of tying off the whole lower half of the body by actual experience has proven to be groundless. I saw Doderlein in his clinic in Munich demonstrate the Momberg on a puerperal patient without an anaesthetic. The tubing was held for ten minutes without complaint. In most cases anaesthetics are used but usually for the accompanying treatment, not on account of the tourniquet. Momberg put this method into application following experiments on animals. As soon as one is convinced that the results are so gratifying, one forgets the impression of the amount of force that is used.

Bier in a case of sarcoma of the hip used the Momberg in amputating the part under spinal anaesthesia. The man did not complain and did not lose but little blood; the operation was performed with the patient



in the Trendelenberg position. The usual shock following this operation was absent and Bier recommends the Momberg in all larger pelvic cases. He says that the Momberg is pretty and simple in results. This case lasted 45 minutes.

Hofbauer reports a case of a large myoma, the size of a man's head which he removed per vaginae with the aid of the Momberg. He reports the operation as being absolutely bloodless and lasting 75 minutes. No disturbance followed.

The first case that came under my observation was a woman of 31, multipara, normal pelvis, 8 months pregnant, comatose, edema of extremities, albumen and casts in urine. Diagnosis, puerperal eclampsia. Cervix dilated with Champetier De Ribes balloon and in one hour expelled; immediately following I did a version and a normal child of seven pounds was delivered. Following the birth, the patient bled profusely and the Momberg was applied; no further hemorrhage. Examination showed 2 extensive tears of the servix, one extending through the inner os, also a laceration of the clitoris and perineum. These injuries were repaired, placenta removed by Créde's